

# ABSTRACT OF THE DISCLOSURE

Providing a transmitter composed of a transmitting circuit that does not require a high-performance low noise VCO restricting cost reduction thereof and that can reduces the number of parts without requiring an RF filter.

A direct conversion that does not require a transmission VCO is applied to the transmitting circuit. In order to achieve noise reduction in receiving band, low-pass filters 130 and 131 are provided at IQ input sections of a modulator 106 that converts IQ signals into RF signals.

In comparison with a conventional transmitter using offset PLL, an external VCO required in addition to an RF integrated circuit, a power amplifier, and a front end circuit is reduced. Even in current transistor performance, by using a filter having rapid waveform characteristics such as a SAW more inexpensive than the VCO, or the like, it is possible to provide a GSM/GSM 1800/GSM1900 triple band transmitter.